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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,856

03/31/2004

Murali Sastry

U 015123-3

5593

7590

01/19/2007

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EXAMINER

DANIELS, MATTHEW J

ART UNIT

PAPER NUMBER

1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/814,856

Applicant(s)

SASTRY ET AL.

Examiner

Matthew J. Daniels

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 7/12/04.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. Two documents were noted in the application file but are not listed on an information disclosure statement. The two documents as follows:

(1) Hopwood, J. D. and S. Mann, Synthesis of Barium Sulfate Nanoparticles and Nanofilaments in Reverse Micelles and Microemulsions, Chem. Mater., Vol. 9, (1997), 1819-1828.

(2) Mann, S., B. Heywood, S. Rajam, J. D. Birchall, Controlled Crystallization of CaCo₃ under stearic acid monolayers, Nature, Vol. 334, (1998), pages 692-695.

Applicant is requested to clarify whether these documents are intended to be part of the record by submission of an information disclosure statement.

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Please list all U.S. Patent references cited in the body of the text in an information disclosure statement.

Specification

3. On page 11, Example 10, the disclosure indicates that formation of platinum crystallites occurs by dissolving platinum chloride and subsequent precipitation (Page 11, lines 18-22).

Note, however, that gold crystals are collected at the end of the process (Page 11, lines 27-28).

Appropriate correction is required. Other examples have not been checked in detail to ensure

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that they are correct, however, Applicant is encouraged to review the disclosure for any other errors.

Claim Objections

4. **Claim 1** is objected to because of the following informalities: Note "...column to to a reducing..." in line 6. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. **As to Claim 1**, the portion of line 1 which recites particular sizes of particles in indefinite because it is unclear if these are claimed sizes or merely examples of the desired range. Because particular particle sizes are claimed in Claims 7 and 8 (claim 8 being redundant with regard to the particle size range recited within the parentheses), the size limitation has not been treated as part of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinus (USPN 4425261) in view of Menon (USPN 4920083). **As to Claim 1**, Steinus teaches a process for the preparation of micron/nano sized inorganic particles (2.5 nm, 4: 55) using aqueous solutions which comprises mixing an aqueous solution of a base inorganic salt (2, 19-20, 4:64-65) with a surfactant (3:27) oppositely charged to the base inorganic salt (1:46-60), reducing the inorganic salt particles in the column by exposing the column to a reducing agent/atmosphere to obtain nanoparticles of the corresponding inorganic material of the base inorganic salt (4:49-51), and collecting the nanoparticles (inherent).

Steinus appears to be silent to the following aspects of the invention:

- (a) use of foams or foaming surfactants
- (b) aerating the mixture to form a column of foam
- (c) allowing the foam to settle with gradual collapsing
- (d) collecting the nanoparticles by spraying with distilled water and drying the particles.

However, these aspects of the invention would have been prima facie obvious to one of ordinary skill in the art for the following reasons:

- (a) Menon teaches use of foams and foaming surfactants oppositely charged to the base inorganic salt (2:45-68)

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(b) Menon teaches aerating the mixture to form a column of foam (2:52-55)

(c) Menon teaches allowing the foam to settle with gradual collapsing (3:36-40)

(d) Menon teaches drying the particles (5:64). It would have been prima facie obvious to wash the particles of Steinus with distilled water in order to remove residual impurities.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Menon into that of Steinus because both are directed at precipitation of micron or nanometer scale particles from a salt-surfactant solution and because Menon's process would provide desirable flake morphologies, which produce optimum optical, mechanical, and thermal properties in two dimensions (1:28-30).

As to Claim 2, Menon suggests the process as suitable for aluminum salts (6:30-65). **As to Claim 3**, Steinus suggests chloroplatinate (2:18-41). **As to Claims 4 and 5**, Menon clearly suggests a foaming surfactant of sodium alkyl sulfates (5:1-10). **As to Claim 6**, although silent to the exact porosity of the foam, it is asserted that because Menon desires to avoid gases which could break the foam (4:60-62) and desires the ability to control the rate of gas flow (4:8-16), the particular degree of porosity would be a result effective variable that one would optimize in order to provide dry flakes at the top of the reactor column (4:14-16). **As to Claims 7 and 8**, both Steinus (4:55) and Menon (5:21-24) provide particles of substantially the claimed size, and it is asserted that the particles would be substantially uniform in size.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 1/12/07




CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER

1/16/07